OCCUPATIONAL ANALYSES SERIES

Mobile Crane Operator

2006

Human Resources and Skills Development Canada
Ressources humaines et Développement des compétences Canada
Canada

Occupational Analyses Series

Mobile Crane Operator

2006

Trades and Apprenticeship Division

Human Resources
Partnerships Directorate

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Opérateur/opératrice de grue automotrice

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The Canadian Council of Directors of Apprenticeship (CCDA) recognizes this Occupational Analysis as the national standard for the occupation of Mobile Crane Operator.

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OTHER RELATED OCCUPATIONAL TITLES

This analysis covers tasks performed by mobile crane operators whose occupational title has been identified by some provinces and territories of Canada under the following names:

- Crane Operator
- Crane and Hoist Operator
- Crane and Hoisting Equipment Operator – Mobile Crane
- Crane and Hoisting Equipment Operator – Mobile Crane Operator
- Hoist Equipment Operator – Branch 1 (Mobile Crane)
- Mobile Crane Operator (Construction Industry)
- Mobile Crane Operator – Branch 1

LIST OF RED SEAL NATIONAL OCCUPATIONAL ANALYSES

TITLE	NOC* Code
Appliance Service Technician (2005)	7332
Automotive Painter (2005)	7322
Automotive Service Technician (2005)	7321
Baker (1997)	6252
Boilermaker (2003)	7262
Bricklayer (2000)	7281
Cabinetmaker (2000)	7272
Carpenter (2005)	7271
Concrete Finisher (2006)	7282
Construction Electrician (2003)	7241
Cook (2003)	6242
Electrical Rewind Mechanic (1999)	7333
Electronics Technician – Consumer Products (1997)	2242
Farm Equipment Mechanic (2000)	7312
Floorcovering Installer (2005)	7295
Glazier (2004)	7292
Hairstylist (2005)	6271
Heavy Duty Equipment Technician (2004)	7312
Industrial Electrician (2003)	7242
Industrial Instrument Mechanic (2000)	2243
Industrial Mechanic (Millwright) (1999)	7311
Insulator (Heat and Frost) (2000)	7293
Ironworker (Generalist) (1993)	7264
Lather (Interior Systems Mechanic) (2002)	7284
Machinist (2005)	7231
Metal Fabricator (Fitter) (2003)	7263

Mobile Crane Operator (2006)	7371
Motorcycle Mechanic (1995)	7334
Motor Vehicle Body Repairer (Metal and Paint) (2005)	7322
Oil Burner Mechanic (1997)	7331
Painter and Decorator (2000)	7294
Partsperson (2005)	1472
Plumber (2003)	7251
Powerline Technician (2004)	7244
Recreation Vehicle Mechanic (2000)	7383
Refrigeration and Air Conditioning Mechanic (2004)	7313
Roofer (2006)	7291
Sheet Metal Worker (1997)	7261
Sprinkler System Installer (2003)	7252
Steamfitter – Pipefitter (1996)	7252
Tilesetter (2004)	7283
Tool and Die Maker (2005)	7232
Transport Trailer Technician (2003)	7321
Truck and Transport Mechanic (2000)	7321
Welder (2004)	7265

* National Occupational Classification

Requests for these publications should be forwarded to:

Trades and Apprenticeship Division
Human Resources Partnerships
Human Resources and Skills Development Canada
140 Promenade du Portage, Phase IV, 5th Floor
Gatineau, Quebec K1A 0J9

These publications are also available to order or download online at: **www.red-seal.ca**.

A comparative listing of apprenticeship training programs across Canada may be accessed at **www.ellischart.ca**. The Ellis Chart also lists the current provincial and territorial trade names.

FOREWORD

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to co-operate with provincial and territorial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Human Resources and Skills Development Canada (HRSDC) sponsors a program, under the guidance of the Canadian Council of Directors of Apprenticeship (CCDA), to develop a series of occupational analyses.

The Occupational Analysis Program has the following objectives:

- to identify and group the tasks performed by skilled workers in particular occupations;
- to identify those tasks that are performed by skilled workers in every province and territory;
- to develop instruments for use in the preparation of Interprovincial Standards "Red Seal" Examinations and curricula for training leading to the certification of skilled workers;
- to facilitate the mobility, in Canada, of apprentices and skilled workers;
- to supply employers and employees, and their associations, industries, training institutions and governments with analyses of the tasks performed in particular occupations.

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GUIDE TO ANALYSIS

DEVELOPMENT OF ANALYSIS

A draft analysis is developed by a committee of industry experts in the field led by a team of facilitators. This draft analysis identifies all the tasks performed in the occupation.

The draft is translated and reviewed by the NOA Team of HRSDC. A copy of this analysis is then forwarded to provincial/territorial authorities for review by specialists in the field. Their recommendations are assessed and incorporated into the final draft.

The occupational analysis is published in both official languages.

STRUCTURE OF ANALYSIS

To facilitate understanding of the nature of the occupation, the work performed is divided into the following divisions:

BLOCK – is the largest division within the analysis and reflects a distinct operation relevant to the occupation.

TASK – is the distinct activity that, combined with others, makes up the logical and necessary steps the worker is required to perform to complete a specific assignment within a "BLOCK".

SUB-TASK – is the smallest division into which it is practical to subdivide any work activity and, combined with others, fully describes all duties constituting a "TASK".

Supporting Knowledge & Abilities

The elements of skill and knowledge that an individual must acquire to adequately perform the sub-task.

Trends

Any shifts or changes in technology that affect the block.

Tools and Equipment

All tools and equipment necessary for the mobile crane operator to perform the work on all given tasks identified within the block.

Context

A statement written to clarify the intent and meaning of blocks in the analysis.

VALIDATION METHOD

At the request of the Canadian Council of Directors of Apprenticeship (CCDA), the Standardization Sub-committee developed a method for validating the Red Seal National Occupational Analyses.

A draft of the analysis is sent to all jurisdictions for validation. Each jurisdiction rates the sub-tasks and applies percentage ratings to blocks and tasks. This method for the validation of the National Occupational Analysis identifies common core tasks across Canada for a specific occupation. This feature facilitates the weighting of the Interprovincial Standards "Red Seal" Examinations.

DEFINITIONS

YES: the sub-task is performed by workers in the occupation in a specific jurisdiction.

NO: the sub-task is not performed by workers in the occupation in a specific jurisdiction.

BLOCK %: the average number of questions (items), derived from the collective decision made by workers within the occupation from all areas of Canada, that will be placed on an interprovincial examination to assess each block of the analysis.

TASK %: the average number of questions (items), derived from the collective decision made by workers within the occupation from all areas of Canada, that will be placed on an interprovincial examination to assess each task of the analysis.

NV: Not Validated by a province/territory.

ND: Not Designated in a province/territory.

PROVINCIAL/TERRITORIAL ABBREVIATIONS

NL: Newfoundland and Labrador
NS: Nova Scotia
PE: Prince Edward Island
NB: New Brunswick
QC: Quebec
ON: Ontario
MB: Manitoba
SK: Saskatchewan
AB: Alberta
BC: British Columbia
NT: Northwest Territories
YT: Yukon
NU: Nunavut

COMMON CORE

The criteria for determining common core depend on the performance of sub-tasks. If at least 70% of the responding jurisdictions (excluding NVs and NDs) perform a sub-task, it shall be considered common core.

Interprovincial Standards "Red Seal" Examinations are based on the common core identified through this validation process. Validation identifies what will be assessed through the interprovincial examination.

BLOCK AND TASK WEIGHTING (APPENDIX C)

This appendix represents the block and task percentages as submitted by each jurisdiction.

Each jurisdiction, with the use of a provincial/territorial occupational advisory committee, validates the content, places percentages on blocks and tasks, and indicates whether or not the sub-tasks are performed by the skilled workers within the occupation. The results of this exercise are submitted to the NOA Team who then analyzes the data and develops this appendix which provides the individual jurisdictional validation results as well as the national averages of all responses.

PIE CHART (APPENDIX D)

The graph depicts the national percentages assigned to blocks in the analysis.

SCOPE OF THE MOBILE CRANE OPERATOR OCCUPATION

Mobile crane operators operate mobile cranes to lift, move, position and place materials and equipment. They perform pre-operational inspections. They calculate crane capacities and determine load weight, set up and dismantle cranes and position and stabilize the crane before the lift. They may also participate in rigging procedures. They also perform some routine maintenance and housekeeping of the crane equipment such as lubricating and cleaning.

Mobile cranes are used in many industry sectors. They are very commonly used in the construction of buildings and the assembly of large equipment. They are used on construction sites, warehouses, factories, mines, oil rigs, refineries, railway yards, ships and ports. Mobile crane operators may be employed by rental companies, construction firms, manufacturers, public utilities, transport sector companies, ship builders, cargo-handlers, airports, railways and mines.

Cranes come in different types such as crawlers, truck-mounted, rough-terrain and all-terrain. The boom of the crane may be lattice or hydraulic. Some cranes are fitted with equipment that can perform specialized functions including piledriver, clamshell, dragline, wrecking ball, magnet, heavy lift attachments, tower attachments and luffing jibs.

Some mobile crane operators specialize in different crane functions. In some cases, an operator may work for years on a single large site, operating a single type and size of crane. Operators working for rental companies may rarely work on the same site more than once and may routinely perform a variety of tasks with different types and sizes of cranes.

The majority of the work in this trade is outdoors. Key attributes for people entering the trade are strong communication skills, mechanical aptitude, mathematical ability, excellent visual and depth perception and a high degree of hand-foot-eye coordination. The operation of some cranes is physically demanding as is the handling of accessories.

Mobile crane operators interact with other tradespeople, contractors and customers.

The skills of mobile crane operators are transferable to operating other heavy equipment. With experience, operators may move into careers such as business owners, supervisors, trainers and job coordinators.

OCCUPATIONAL OBSERVATIONS

Safety is the number one concern of crane operators, owners and contractors. Mobile crane operators are required to take site-specific safety training to be familiar with the company, contractor and jobsite safety requirements. The regulatory environment in which Canada's crane industry operates continues to grow more complex and more rigorous, covering issues such as due diligence and liability.

As cranes are becoming more sophisticated, the need for training is increasing. There is new knowledge in computer technology, metallurgy and other disciplines associated with the engineering of crane equipment.

Due to technological advances in operator aids such as load moment indicators (LMI), crane operators are more aware of their crane operation limitations.

SAFETY

Safe working procedures and conditions, accident prevention and the preservation of health are of primary importance to industry in Canada. These responsibilities are shared and require the joint efforts of government, employers and employees. It is imperative that all parties are aware of circumstances and conditions that may lead to injury or harm. Safe learning experiences and environments can be created by controlling the variables and behaviours that may contribute to accidents or injury.

It is generally recognized that a safety-conscious attitude and work practices contribute to a healthy, safe and accident-free working environment.

It is imperative to apply and be familiar with the Occupational Health and Safety Acts and Workplace Hazardous Materials Information System (WHMIS) Regulations. As well, it is essential to determine workplace hazards such as power line hazards and take measures to protect oneself, co-workers, the public and the environment. Basic knowledge and awareness of jurisdictional laws and regulations are essential to understand one's legal obligations in this trade.

As safety education is an integral part of training in all jurisdictions, personal safety practices are not recorded in this document. However, the technical safety aspect relating to each task and sub-task are included throughout this analysis.

ANALYSIS

BLOCK A

OCCUPATIONAL SKILLS

Context: *The proper use of tools enables mobile crane operators to work safely and complete tasks as required. Communication in this trade is vital so that all personnel involved in the lift are aware of what is happening.*

Trends: *There is more emphasis and enforcement of the use of personal protective equipment (PPE) and safety equipment. There is an increase in the use of engineered drawings. Radio communication is being used more frequently in lifts. Mobile crane operators are increasingly using electronic equipment such as personal digital assistants (PDAs) to communicate and input information.*

Tools and Equipment: See Appendix A.

Task 1 Uses tools and equipment.

Sub-task

1.01 Uses hand tools.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

1.01.01 knowledge of types of hand tools

1.01.02 knowledge of hand tool operating procedures

1.01.03 ability to select hand tools according to task

1.01.04 ability to recognize worn, damaged and defective hand tools

Sub-task

1.02 Uses power tools.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	no	yes	yes	yes	yes	yes	NV	ND	NV

1.02.01 knowledge of types of power tools

1.02.02 knowledge of power tool operating procedures

1.02.03	ability to select power tools according to task
1.02.04	ability to locate power source such as generator and outlets
1.02.05	ability to recognize worn, damaged and defective power tools

Sub-task

1.03 Uses torches.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	no	yes	yes	yes	yes	yes	NV	ND	NV

1.03.01	knowledge of types of torches such as oxy-acetylene and propane
1.03.02	knowledge of fittings on tanks, gauges and torches
1.03.03	knowledge of torch operating procedures
1.03.04	ability to read setting pressure
1.03.05	ability to cut
1.03.06	ability to braze
1.03.07	ability to heat
1.03.08	ability to select torches according to task
1.03.09	ability to recognize worn, damaged and defective torch equipment

Sub-task

1.04 Uses measuring equipment.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

1.04.01	knowledge of measuring equipment such as measuring tape, micrometers and vernier calipers
1.04.02	knowledge of anemometer
1.04.03	ability to convert between imperial and metric measurements
1.04.04	ability to interpret measurements
1.04.05	ability to select measuring equipment according to task
1.04.06	ability to recognize worn, damaged and defective measuring equipment

Sub-task

1.05 Uses personal protective equipment (PPE) and safety equipment.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

1.05.01	knowledge of types of PPE such as fire-retardant coveralls, safety boots, hard hats, safety glasses, hearing protection, fall arrest harnesses and survival suits
1.05.02	knowledge of types of safety equipment such as first aid kit, fire extinguisher and spill kits
1.05.03	ability to select PPE and safety equipment according to task
1.05.04	ability to recognize worn, damaged and defective PPE and safety equipment

Task 2 Organizes work.

Sub-task

2.01 Communicates with others. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

2.01.01	knowledge of hand signals
2.01.02	knowledge of radio communication
2.01.03	ability to communicate verbally
2.01.04	ability to communicate with crew, signaller and rigger
2.01.05	ability to communicate with customers
2.01.06	ability to consult with engineers
2.01.07	ability to coach apprentices

Sub-task

2.02 Uses documentation. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

2.02.01	knowledge of types of documentation such as manufacturers' specifications, operator manual, permits, charts, bills of lading, log books and pre-trip books
2.02.02	knowledge of jurisdictional legislation and regulations
2.02.03	knowledge of the Canadian Standards Association (CSA) Z150 standards
2.02.04	knowledge of crane operators' legal responsibilities
2.02.05	knowledge of site-specific documentation

2.02.06	ability to interpret engineered drawings
2.02.07	ability to interpret safety documentation such as Workplace Hazardous Materials Information System (WHMIS) and Power Line Hazards (PLH)

Sub-task

2.03 Identifies hazards.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

2.03.01	knowledge of occupational hazards such as chemical, high tension wires and weather
2.03.02	knowledge of environmental hazards such as oil spills and disposal of hazardous materials
2.03.03	knowledge of limits of approach to power lines
2.03.04	knowledge of WHMIS
2.03.05	ability to recognize potential hazards such as oil spills on deck, guy wires and loose bolts

BLOCK B

HOISTING CALCULATIONS

Context: *The ability to accurately calculate crane and rigging capacity for any given load is vital to the safe operation of mobile cranes.*

Trends: *Employers and contractors are placing more emphasis on the accurate interpretation of load charts.*

Tools and Equipment: Load charts, measuring equipment, calculator.

Task 3 Determines load weights.

Sub-task

3.01 Identifies the weight.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

3.01.01 knowledge of sources of load weight information such as bills of lading, stamped weights, engineered drawings and previous lift history

3.01.02 ability to verify units of measurement (metric versus imperial)

3.01.03 ability to confirm that no modifications have been made that affect the weight

Sub-task

3.02 Calculates weight.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

3.02.01 knowledge of formulas for conversion between imperial and metric systems

3.02.02 knowledge of basic geometry

3.02.03	knowledge of factors contributing to load weight such as ice, snow, crating and shifting liquids
3.02.04	ability to perform basic mathematical calculations such as volume times density for weights of objects
3.02.05	ability to adapt load-weight calculation to reflect the impact of dynamic forces and changing conditions such as precipitation

Task 4 Calculates crane capacity.

Sub-task

4.01 Determines radius and crane configuration.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

4.01.01	knowledge of manufacturers' specifications
4.01.02	knowledge of jurisdictional safety regulations
4.01.03	knowledge of methods of measuring radius such as dry run
4.01.04	knowledge of line pull and working load limit (WLL)
4.01.05	ability to define working radius
4.01.06	ability to identify crane components affecting crane capacity such as line pull, counterweight, configuration, auxiliary lifting devices and parts of line

Sub-task

4.02 Interprets load charts.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

4.02.01	knowledge of the radius, boom length, angle and gross capacity
4.02.02	ability to interpret manufacturers' specifications
4.02.03	ability to calculate gross load and net capacity

Task 5 Performs rigging calculations.

Sub-task

5.01 Performs sling angle calculations.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

5.01.01	knowledge of sling and hardware capacity
5.01.02	knowledge of sling angle/sling tension tables
5.01.03	knowledge of effect of sling angle on sling capacity
5.01.04	knowledge of lift data such as available rigging, load size, weight and center of gravity
5.01.05	ability to perform mathematical calculations to determine sling angle/sling tension

Sub-task

5.02 Performs working load limit (WLL) calculations.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

Supporting Knowledge & Abilities

5.02.01	knowledge of size and type of sling
5.02.02	knowledge of sling configurations such as choke, basket, vertical and bridle
5.02.03	knowledge of size and type of hardware such as shackles, lifting eyes and beams
5.02.04	ability to interpret engineers' and manufacturers' specifications

BLOCK C

CRANE INSPECTION AND MAINTENANCE

Context: *Safety is the primary reason for thorough inspection and maintenance. Minor maintenance may be done by mobile crane operators but repairs must be performed by qualified technicians. Regular inspections and maintenance keep the crane in good working order.*

Trends: *More standardized maintenance is being monitored by computers. It is more common to have regular inspections/certifications of cranes. Some new cranes have features such as self-greasers eliminating manual greasing of many moving parts. There is more oil sample testing to prevent premature excessive wear and component failure. Continued emphasis on manually maintaining older cranes is still required as many are still in operation.*

Tools and Equipment: See Appendix A.

Task 6 Performs pre-operational checks and regular inspections.

Sub-task

6.01 Inspects engine systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

Supporting Knowledge & Abilities

6.01.01	knowledge of engine system components
6.01.02	ability to identify damage to engine system such as leaks, cracks and worn belts
6.01.03	ability to check engine fluids such as fuel, oil and coolant
6.01.04	ability to report suspected problems and deficiencies

Sub-task

6.02 Inspects air systems.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.02.01	knowledge of air system components such as air lines, compressors, belts, dryer system and air tanks
6.02.02	ability to identify air system failures such as air leaks, blockages and frozen lines
6.02.03	ability to check brake system
6.02.04	ability to report air system failures

Sub-task

6.03 Inspects electrical systems.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.03.01	knowledge of electrical system components such as charging system, lights, signals, alternator, starter, belts, batteries and gauges
6.03.02	ability to recognize electrical system failures
6.03.03	ability to report electrical system failures

Sub-task

6.04 Inspects hydraulic systems.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.04.01	knowledge of hydraulic system components such as hoses, pumps, filters and tanks
6.04.02	knowledge of types of hydraulic oil

6.04.03	ability to check sight gauge
6.04.04	ability to check for leaks
6.04.05	ability to extract hydraulic oil for testing
6.04.06	ability to report hydraulic system failures

Sub-task

6.05 Inspects chassis/car body and running gear components.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.05.01	knowledge of chassis/car body and running gear components such as steering, braking mechanisms, suspension, drive train, tracks and wheels
6.05.02	ability to check tire pressure
6.05.03	ability to identify track damage such as cracked pads, broken pins, and worn chains, sprockets and idlers
6.05.04	ability to identify chassis and drive train damage such as loose universal joints, leaks in rear end seal and broken fittings
6.05.05	ability to identify braking problems
6.05.06	ability to identify steering system damage
6.05.07	ability to report chassis/car body and running gear damage

Sub-task

6.06 Inspects outriggers and counterweights.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.06.01 knowledge of outrigger components such as beams, jacks and jack pads

6.06.02 knowledge of types of counterweights such as fixed, stackable, removable and bumper

6.06.03 ability to check for damage to counterweights and lifting lugs

6.06.04 ability to verify position of counterweights

6.06.05 ability to check for damage to outrigger beams and pads

6.06.06 ability to report outrigger and counterweight damage

Sub-task

6.07 Inspects boom components and attachments.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.07.01 knowledge of booms such as lattice and telescopic

6.07.02 knowledge of boom attachments such as luffers, jibs, swing-away jib extensions and auxiliary sheaves

6.07.03 knowledge of boom components such as head section, butt section, pendant lines and bars, wear pads, telescopic cables and chain systems

6.07.04 knowledge of jurisdictional requirements for non-destructive testing

6.07.05	knowledge of power pin and dead section
6.07.06	ability to check components and attachments for cracks, bent lacing, bent main chords, damaged pendant lines and bars, and worn wear pads

Sub-task

6.08 Inspects hoisting systems. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.08.01	knowledge of hoisting system components such as clutches, brakes, pumps, hook blocks, overhaul ball, sockets, wedges, clamps and sheaves
6.08.02	knowledge of types of wire rope such as rotation resistant, regular right lay and regular left lay
6.08.03	knowledge of manufacturers' specifications
6.08.04	ability to identify deformities such as bird caging, broken strands and crushing
6.08.05	ability to check position of wire rope clip
6.08.06	ability to report hoisting system damage

Sub-task

6.09 Inspects operating controls. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.09.01	knowledge of operating controls such as levers, joysticks, foot brakes, master clutch, swing brake, positive swing lock and boom pawl

6.09.02	ability to check function of operating controls
6.09.03	ability to report operating control problems

Sub-task

6.10 Inspects monitoring and warning systems.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

6.10.01	knowledge of load moment indicator (LMI) and load-monitoring devices
6.10.02	knowledge of anti-two block system
6.10.03	knowledge of range limiting devices
6.10.04	ability to test anti-two block
6.10.05	ability verify LMI accuracy
6.10.06	ability to check back-up alarm
6.10.07	ability to report monitoring and warning system failures

Task 7 Performs continual checks.

Sub-task

7.01 Monitors site conditions.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

7.01.01	knowledge of weather conditions such as wind, lightning and temperature
7.01.02	knowledge of ground conditions such as soil compaction and grade

7.01.03	knowledge of water conditions such as tides, waves and currents
7.01.04	ability to determine need for mats and blocks
7.01.05	ability to determine need to adjust outriggers
7.01.06	ability to determine changing site conditions such as aerial obstructions, other equipment and personnel on site

Sub-task

7.02 Monitors running lines, hoist lines and standing ropes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

7.02.01	knowledge of manufacturers' specifications
7.02.02	knowledge of hoist lines, boom-hoist lines and luffing jibs
7.02.03	ability to check spooling on drum
7.02.04	ability to monitor drum rotation speed
7.02.05	ability to monitor operational performance of running lines, boom-hoist drum, stationary pennants and standing ropes
7.02.06	ability to identify drum hoist line defects such as kinking, fraying and twisting

Sub-task

7.03 Monitors gauges and warning systems.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

7.03.01	knowledge of LMI and load scale

7.03.02	knowledge of anti-two block system
7.03.03	ability to interpret gauges and warning systems

Task 8 Performs minor crane maintenance.

Sub-task

8.01 Changes oil and filter.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

8.01.01	knowledge of location of filters, drain plugs, filler caps and shut-off
8.01.02	knowledge of types of oils and viscosities
8.01.03	knowledge of spill kit
8.01.04	knowledge of disposal requirements
8.01.05	ability to identify gas and diesel engines
8.01.06	ability to take oil samples for testing

Sub-task

8.02 Greases crane.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

8.02.01	knowledge of locations of grease fittings from manufacturers' specifications
8.02.02	knowledge of types of grease
8.02.03	ability to follow maintenance schedule
8.02.04	ability to use grease guns

Sub-task

8.03 Lubricates wire ropes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

8.03.01	knowledge of manufacturers' specifications
8.03.02	knowledge of types of lubricants such as wire rope dressing
8.03.03	ability to recognize need for lubrication

Sub-task

8.04 Makes minor adjustments and replacements.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

8.04.01	knowledge of normal crane operation
8.04.02	knowledge of company policies and procedures
8.04.03	ability to adjust hoist brake
8.04.04	ability to drain air tanks
8.04.05	ability to change hoses
8.04.06	ability to replace electrical components such as bulbs and fuses
8.04.07	ability to select maintenance products according to operational conditions

BLOCK D

RIGGING

Context: *Mobile crane operators are involved in rigging to ensure that it is done safely and properly. While mobile crane operators may not be doing the rigging, they must possess knowledge of rigging procedures. Mobile crane operators have the final say and responsibility for any lift done by their crane.*

Trends: *New materials such as synthetics are being used in rigging. Chain slings are being used more frequently.*

Tools and Equipment: See Appendix A.

Task 9 **Inspects and maintains slings and hardware.**

Sub-task

9.01 **Lubricates slings and hardware.**

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

9.01.01 knowledge of types of lubricants such as wire rope dressing and aerosol sprays

9.01.02 knowledge of types of slings such as steel and synthetic

Sub-task

9.02 **Identifies deformities in slings and hardware.**

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

9.02.01 knowledge of potential deformities in steel slings and hardware such as kinks, broken strands, damaged threads and misshapen components

9.02.02	knowledge of potential damage to synthetic slings and hardware such as frays, cuts and stretching
9.02.03	ability to report deformities and damages

Sub-task

9.03 Disposes of damaged slings and hardware.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

9.03.01	knowledge of disposal procedures
9.03.02	knowledge of company policies
9.03.03	ability to tag damaged slings and hardware prior to disposal
9.03.04	ability to cut damaged slings and hardware to prevent further use
9.03.05	ability to report disposal

Task 10 Follows rigging procedures.

Sub-task

10.01 Selects required rigging.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

10.01.01	knowledge of working load limit (WLL)
10.01.02	knowledge of types of rigging and their applications

10.01.03	knowledge of characteristics of load such as weight, centre of gravity and dimensions
10.01.04	knowledge of working conditions which may affect rigging such as acids and caustic substances

Sub-task

10.02 Rigs loads.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

10.02.01	knowledge of load weight
10.02.02	knowledge of lifting points
10.02.03	knowledge of centre of gravity
10.02.04	knowledge of capacities of rigging
10.02.05	knowledge of site-specific regulations regarding rigging
10.02.06	ability to use lifting bars and beams

Sub-task

10.03 Monitors rigging.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

10.03.01	knowledge of manufacturers' specifications
10.03.02	knowledge of rigging position on lift
10.03.03	ability to identify rigging hazards during lifting
10.03.04	ability to assess the importance of the rigger in a blind lift

BLOCK E

LIFT PLANNING, SITE PREPARATION AND CRANE SETUP

Context: *Pre-lift plans can run from a brief informal plan to a detailed process involving many other parties such as companies, engineers, customers and sub-contractors. One of the steps involved in pre-lift planning is the setup of the crane. Proper setup and positioning of the crane is the basis of all safe lifting operations.*

Trends: *Pre-lift planning, including job safety analysis, is becoming more formal and more common in order to perform a safe lift.*

Tools and Equipment: Calculator, measuring equipment, levels, PPE and safety equipment.

Task 11 Performs pre-lift planning.

Sub-task

11.01 Participates in routine, engineered and specialty lift planning.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

11.01.01 knowledge of factors affecting the lift such as tail swing, load path and clearances

11.01.02 knowledge of roles and responsibilities of all persons involved with the lift

11.01.03 ability to organize the sequence of operations

Sub-task

11.02 Assesses risks and hazards.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

11.02.01 knowledge of applicable standards and guidelines

11.02.02	knowledge of hazards such as overhead obstructions, power lines, and above and underground obstacles
11.02.03	ability to recommend controls to eliminate or minimize risks and hazards

Task 12 Sets up crane.

Sub-task

12.01 Performs final site inspection. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

12.01.01	knowledge of recommended controls to minimize or eliminate risks and hazards
12.01.02	ability to ensure site hazards have been minimized or eliminated

Sub-task

12.02 Positions crane. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

12.02.01	knowledge of the requirements of the job such as radii, clearances, crane dimensions and load dimensions
12.02.02	ability to determine crane location
12.02.03	ability to establish point of reference

Sub-task

12.03 Completes setup.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

12.03.01	knowledge of setup procedures as per manufacturers' specifications
12.03.02	knowledge of site requirements for blocking
12.03.03	ability to block, extend and set outriggers
12.03.04	ability to level the crane using outriggers or shimming/blocking tracks
12.03.05	ability to recheck radius
12.03.06	ability to recheck turntable level and ground conditions

BLOCK F

CRANE ASSEMBLY, DISASSEMBLY AND TRANSPORT

Context: *Mobile crane operators need to disassemble cranes in order to transport them to and from jobsites. Disassembly of the crane may be necessary to comply with road regulations. Cranes can be transported by truck, rail, barge or can be self-propelled. Once the crane arrives at the jobsite, its components need to be assembled.*

Trends: *There is an increase in the size and complexity of cranes and attachments. They require more time, workers and equipment to assemble and disassemble. Foreign cranes and attachments are being introduced into the Canadian market.*

Tools and Equipment: See Appendix A.

Task 13 Loads and unloads components for transport.

Sub-task

13.01 Loads crane and components. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

13.01.01	knowledge of center of gravity
13.01.02	knowledge of types of rigging such as synthetic and wire rope slings
13.01.03	knowledge of manufacturers' specifications such as hook-up points and component weight
13.01.04	knowledge of types of tie downs such as chain, cable, turnbuckles and synthetic belts
13.01.05	ability to determine lifting points
13.01.06	ability to select assist crane according to weights and radius

13.01.07	ability to distribute crane and component weight on carrier according to regulations
13.01.08	ability to secure crane and components on carriers such as flatbeds, lo-boys, barge and rail

Sub-task

13.02 Unloads crane and components.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

13.02.01	knowledge of center of gravity
13.02.02	knowledge of types of rigging such as synthetic and wire rope slings
13.02.03	knowledge of manufacturers' specifications such as hook-up points and component weight
13.02.04	knowledge of removal sequence for assembly
13.02.05	ability to remove tie downs
13.02.06	ability to select assist crane according to weights and radius

Task 14 Drives cranes on public roadways and jobsites.

Sub-task

14.01 Performs pre-trip planning.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

14.01.01	knowledge of route restrictions such as weight, height and width

14.01.02	ability to read maps
14.01.03	ability to interpret permits

Sub-task

14.02 Prepares crane for transport. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

14.02.01	knowledge of weight restrictions
14.02.02	knowledge of components to remove
14.02.03	knowledge of jurisdictional regulations for travel procedures such as using a boom dolly
14.02.04	knowledge of manufacturers' specifications
14.02.05	knowledge of motor vehicle inspection requirements
14.02.06	ability to set crane to travel mode
14.02.07	ability to fuel crane
14.02.08	ability to visually inspect crane for defects such as burnt out lights, low tire pressure and unsecured components
14.02.09	ability to check all operator cab components such as wipers, heaters, defrosters and mirrors
14.02.10	ability to check for safety equipment such as road flares, fire extinguishers and reflectors
14.02.11	ability to check brakes
14.02.12	ability to install and remove various types of boom dollies

Sub-task

14.03 Drives cranes on public roadways.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

14.03.01	knowledge of licensing requirements
14.03.02	knowledge of speed limits
14.03.03	knowledge of route restrictions such as weight, height and width
14.03.04	knowledge of stopping distances
14.03.05	knowledge of terrain
14.03.06	knowledge of crane height and length
14.03.07	knowledge of turning radius for boom dollies
14.03.08	ability to maintain distance

Sub-task

14.04 Drives cranes on jobsites.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

14.04.01	knowledge of speed limits
14.04.02	knowledge of site conditions such as ground condition and location of utilities
14.04.03	knowledge of site regulations
14.04.04	ability to identify hazards and obstacles such as overhead power lines and other equipment

Task 15 Assembles and disassembles crawler and truck-mounted lattice cranes.

Sub-task

15.01 Installs tracks on car body.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.01.01	knowledge of lifting points
15.01.02	knowledge of component weight
15.01.03	knowledge of installation procedures as per manufacturers' specifications
15.01.04	knowledge of pinch points
15.01.05	knowledge of blocking
15.01.06	ability to remove debris from track
15.01.07	ability to rig track
15.01.08	ability to check for defects such as worn chains, missing bolts, broken track pads and sprockets
15.01.09	ability to install fasteners

Sub-task

15.02 Installs house.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.02.01	knowledge of lifting points
15.02.02	knowledge of component weight
15.02.03	knowledge of installation procedures as per manufacturers' specifications
15.02.04	knowledge of rigging and hardware

15.02.05	ability to check for defects such as worn bolts, pins and bushings
15.02.06	ability to service at lubrication points
15.02.07	ability to adjust tolerances
15.02.08	ability to clean parts
15.02.09	ability to install fasteners

Sub-task

15.03 Installs outrigger boxes on truck-mounted lattice cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.03.01	knowledge of lifting points
15.03.02	knowledge of component weight
15.03.03	knowledge of installation procedures as per manufacturers' specifications
15.03.04	knowledge of rigging and hardware
15.03.05	ability to check for defects such as damaged hoses, fittings and cylinders
15.03.06	ability to clean fittings
15.03.07	ability to connect hoses
15.03.08	ability to install fasteners

Sub-task

15.04 Installs boom base.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.04.01	knowledge of lifting points

15.04.02	knowledge of component weight
15.04.03	knowledge of installation procedures as per manufacturers' specifications
15.04.04	knowledge of rigging and hardware
15.04.05	knowledge of installation of bridle and boom stops
15.04.06	ability to lubricate pins and bushings
15.04.07	ability to check for defects such as worn bushings and damaged chord and lacing
15.04.08	ability to clean components
15.04.09	ability to install fasteners

Sub-task

15.05 Assembles boom and jib.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.05.01	knowledge of lifting points
15.05.02	knowledge of component weight
15.05.03	knowledge of installation procedures as per manufacturers' specifications
15.05.04	knowledge of rigging and hardware
15.05.05	ability to check for defects such as damaged chord, lacing, pendant bars and pendant lines
15.05.06	ability to lubricate pins and sheaves

Sub-task

15.06 Installs counterweights on crawler and truck-mounted lattice cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.06.01	knowledge of lifting points
15.06.02	knowledge of component weight
15.06.03	knowledge of installation procedures as per manufacturers' specifications
15.06.04	knowledge of rigging and hardware
15.06.05	ability to check for defects such as broken bolts, damaged threads and damaged pins
15.06.06	ability to clean component surfaces
15.06.07	ability to operate controls
15.06.08	ability to install fasteners

Sub-task

15.07 Installs hoist lines, hook blocks and overhaul ball on crawler and truck-mounted lattice cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.07.01	knowledge of manufacturers' specifications
15.07.02	knowledge of reeving and lacing
15.07.03	knowledge of block capacity
15.07.04	ability to install socket and wedge
15.07.05	ability to use a cutting torch

15.07.06	ability to seize wire rope lines
15.07.07	ability to check for defects such as broken wires in hoist line and damaged socket and wedge
15.07.08	ability to check spooling
15.07.09	ability to lubricate hook blocks
15.07.10	ability to inspect hooks for hook latches
15.07.11	ability to lubricate wire ropes
15.07.12	ability to install wire rope clips on dead ends
15.07.13	ability to install fasteners

Sub-task

15.08 Removes hoist lines, hook blocks and overhaul ball from crawler and truck-mounted lattice cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.08.01	knowledge of manufacturers' specifications
15.08.02	knowledge of reeving and lacing
15.08.03	ability to remove fasteners
15.08.04	ability to remove wire rope clips on dead ends
15.08.05	ability to remove socket and wedge
15.08.06	ability to check for defects such as broken wires in hoist line and damaged socket and wedge
15.08.07	ability to check spooling
15.08.08	ability to inspect hooks for hook latches

15.08.09	ability to remove hoist line
15.08.10	ability to lubricate wire ropes

Sub-task

15.09 Disassembles boom and jib.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.09.01	knowledge of lifting points
15.09.02	knowledge of component weight
15.09.03	knowledge of installation procedures as per manufacturers' specifications
15.09.04	knowledge of rigging and hardware
15.09.05	ability to check for defects such as damaged chord, lacing, pendant bars and pendant lines
15.09.06	ability to remove jib
15.09.07	ability to protect hardware
15.09.08	ability to remove boom

Sub-task

15.10 Removes counterweights from crawler and truck-mounted lattice cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.10.01	knowledge of lifting points
15.10.02	knowledge of component weight
15.10.03	knowledge of disassembly procedures as per manufacturers' specifications

15.10.04	knowledge of rigging and hardware
15.10.05	ability to remove fasteners
15.10.06	ability to check for defects such as broken bolts, and damaged threads and pins
15.10.07	ability to protect hardware
15.10.08	ability to operate controls

Sub-task

15.11 Removes boom base.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.11.01	knowledge of lifting points
15.11.02	knowledge of component weight
15.11.03	knowledge of disassembly procedures as per manufacturers' specifications
15.11.04	knowledge of rigging and hardware
15.11.05	knowledge of bridle and boom stops removal
15.11.06	ability to remove fasteners
15.11.07	ability to check for defects such as worn bushings and damaged chord and lacing
15.11.08	ability to protect hardware

Sub-task

15.12 Removes house.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.12.01	knowledge of lifting points

15.12.02	knowledge of component weight
15.12.03	knowledge of disassembly procedures as per manufacturers' specifications
15.12.04	knowledge of rigging and hardware
15.12.05	ability to remove fasteners
15.12.06	ability to check for defects such as worn bolts, pins and bushings
15.12.07	ability to clean parts
15.12.08	ability to protect hardware

Sub-task

15.13 Removes tracks from car body.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

15.13.01	knowledge of lifting points
15.13.02	knowledge of component weight
15.13.03	knowledge of disassembly procedures as per manufacturers' specifications
15.13.04	knowledge of pinch points
15.13.05	knowledge of blocking
15.13.06	ability to remove fasteners
15.13.07	ability to remove debris from tracks
15.13.08	ability to rig track for removal
15.13.09	ability to check for defects

Sub-task

15.14 Removes outrigger boxes from truck-mounted lattice cranes.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

Supporting Knowledge & Abilities

15.14.01	knowledge of lifting points
15.14.02	knowledge of component weight
15.14.03	knowledge of disassembly procedures as per manufacturers' specifications
15.14.04	knowledge of rigging and hardware
15.14.05	ability to remove fasteners
15.14.06	ability to check for defects such as damaged hoses, fittings and cylinders
15.14.07	ability to disconnect hoses
15.14.08	ability to protect fittings and hoses
15.14.09	ability to use spill kit

Task 16 Assembles and disassembles truck-mounted and all-terrain (AT) hydraulic cranes.

Sub-task

16.01 Installs outrigger boxes on truck-mounted and AT hydraulic cranes.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

Supporting Knowledge & Abilities

16.01.01	knowledge of lifting points
16.01.02	knowledge of component weight

16.01.03	knowledge of installation procedures as per manufacturers' specifications
16.01.04	knowledge of rigging
16.01.05	knowledge of hydraulic pressure
16.01.06	ability to check for defects such as damaged hoses, fittings and cylinders
16.01.07	ability to clean fittings
16.01.08	ability to connect hoses
16.01.09	ability to install fasteners

Sub-task

16.02 Installs hoist lines, hook blocks and overhaul ball on truck-mounted and AT hydraulic cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

16.02.01	knowledge of manufacturers' specifications
16.02.02	knowledge of reeving and lacing
16.02.03	knowledge of block capacity
16.02.04	ability to install socket and wedge
16.02.05	ability to use a cutting torch
16.02.06	ability to seize wire rope lines
16.02.07	ability to check for defects such as broken wires in hoist line and damaged socket and wedge
16.02.08	ability to check spooling
16.02.09	ability to lubricate hook blocks

16.02.10 ability to inspect hooks for hook latches

16.02.11 ability to install fasteners

Sub-task

16.03 Installs counterweights on truck-mounted and AT hydraulic cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

16.03.01 knowledge of lifting points

16.03.02 knowledge of component weight

16.03.03 knowledge of installation procedures as per manufacturers' specifications

16.03.04 knowledge of rigging and hardware

16.03.05 ability to check for defects such as broken bolts, and damaged threads and pins

16.03.06 ability to clean components surfaces

16.03.07 ability to operate controls

16.03.08 ability to install fasteners

Sub-task

16.04 Installs swing-away jib and jib on truck-mounted and AT hydraulic cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

16.04.01 knowledge of lifting points

16.04.02 knowledge of component weight

16.04.03	knowledge of installation procedures as per manufacturers' specifications
16.04.04	knowledge of rigging and hardware
16.04.05	ability to check for defects such as bent lacing, damaged chords and broken wires
16.04.06	ability to install electrical and hydraulic connections
16.04.07	ability to adjust offset
16.04.08	ability to connect operator aids such as anemometer and anti-two block
16.04.09	ability to install fasteners
16.04.10	ability to pull out extensions

Sub-task

16.05 Removes swing-away jib and jib from truck-mounted and AT hydraulic cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

16.05.01	knowledge of lifting points
16.05.02	knowledge of component weight
16.05.03	knowledge of disassembly procedures as per manufacturers' specifications
16.05.04	knowledge of rigging and hardware
16.05.05	ability to remove fasteners
16.05.06	ability to disconnect operator aids such as anemometer and anti-two block
16.05.07	ability to adjust offset
16.05.08	ability to disconnect electrical and hydraulic connections

16.05.09	ability to check for defects such as bent lacing, damaged chords and broken wires
16.05.10	ability to pull in extensions
16.05.11	ability to stow swing-away and jib

Sub-task

16.06 Removes counterweights for truck-mounted and AT hydraulic cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

16.06.01	knowledge of lifting points
16.06.02	knowledge of component weight
16.06.03	knowledge of disassembly procedures as per manufacturers' specifications
16.06.04	knowledge of rigging and hardware
16.06.05	ability to remove fasteners
16.06.06	ability to check for defects such as broken bolts, and damaged threads and pins
16.06.07	ability to protect hardware
16.06.08	ability to operate controls

Sub-task

16.07 Removes hoist lines, hook blocks and overhaul ball from truck-mounted and AT hydraulic cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

16.07.01	knowledge of manufacturers' specifications

16.07.02	knowledge of reeving and lacing
16.07.03	ability to remove fasteners
16.07.04	ability to remove socket and wedge
16.07.05	ability to check for defects such as broken wires in hoist line and damaged socket and wedge
16.07.06	ability to check spooling
16.07.07	ability to inspect hooks for hook latches
16.07.08	ability to remove hoist line
16.07.09	ability to lubricate wire ropes

Sub-task

16.08 Removes outrigger boxes from truck-mounted and AT hydraulic cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

16.08.01	knowledge of lifting points
16.08.02	knowledge of component weight
16.08.03	knowledge of disassembly procedures as per manufacturers' specifications
16.08.04	knowledge of rigging
16.08.05	knowledge of hydraulic pressure
16.08.06	ability to remove fasteners
16.08.07	ability to check for defects such as damaged hoses, fittings and cylinders
16.08.08	ability to disconnect hoses
16.08.09	ability to protect fittings and hoses
16.08.10	ability to use spill kit

Task 17 Assembles and disassembles rough-terrain (RT) cranes.

Sub-task

17.01 Installs counterweights on RT cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

17.01.01	knowledge of lifting points
17.01.02	knowledge of component weight
17.01.03	knowledge of installation procedures as per manufacturers' specifications
17.01.04	knowledge of rigging and hardware
17.01.05	ability to check for defects such as broken bolts, and damaged threads and pins
17.01.06	ability to clean component surfaces
17.01.07	ability to operate controls
17.01.08	ability to install fasteners

Sub-task

17.02 Installs swing-away jib and jib on RT cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

17.02.01	knowledge of lifting points
17.02.02	knowledge of component weight
17.02.03	knowledge of installation procedures as per manufacturers' specifications
17.02.04	knowledge of rigging and hardware

17.02.05	ability to check for defects such as bent lacing, damaged chords and broken wires
17.02.06	ability to connect electrical and hydraulic connections
17.02.07	ability to adjust jib offset
17.02.08	ability to connect operator aids such as anemometer and anti-two block
17.02.09	ability to install fasteners
17.02.10	ability to pull out extensions

Sub-task

17.03 Removes counterweights from RT cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

17.03.01	knowledge of lifting points
17.03.02	knowledge of component weight
17.03.03	knowledge of disassembly procedures as per manufacturers' specifications
17.03.04	knowledge of rigging and hardware
17.03.05	ability to remove fasteners
17.03.06	ability to check for defects such as broken bolts, and damaged threads and pins
17.03.07	ability to protect hardware
17.03.08	ability to operate controls

Sub-task

17.04 Removes swing-away jib and jib from RT cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

17.04.01	knowledge of lifting points
17.04.02	knowledge of component weight
17.04.03	knowledge of disassembly procedures as per manufacturers' specifications
17.04.04	knowledge of rigging and hardware
17.04.05	ability to remove fasteners
17.04.06	ability to disconnect operator aids such as anemometer and anti-two block
17.04.07	ability to adjust offset
17.04.08	ability to disconnect electrical and hydraulic connections
17.04.09	ability to check for defects such as bent lacing, damaged chords and broken wires
17.04.10	ability to pull in extensions
17.04.11	ability to stow swing-away jib and jib

Task 18 Assembles and disassembles specialty equipment and attachments.

Sub-task

18.01 Assembles specialty equipment and attachments.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

18.01.01	knowledge of crane and components

18.01.02	knowledge of types of specialty equipment such as piledriver, clamshell and dragline
18.01.03	knowledge of types of attachments such as ringer, tower attachment, luffing jib and superlift
18.01.04	knowledge of specialty equipment applications
18.01.05	knowledge of installation procedures as per manufacturers' specifications
18.01.06	ability to check for defects such as damaged chords and lacing, and broken wire rope
18.01.07	ability to service at lubrication points
18.01.08	ability to select assembly area

Sub-task

18.02 Disassembles specialty equipment and attachments.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

18.02.01	knowledge of crane and components
18.02.02	knowledge of types of specialty equipment such as piledriver, clamshell and dragline
18.02.03	knowledge of types of attachments such as ringer, tower attachment, luffing jib and superlift
18.02.04	knowledge of specialty equipment applications
18.02.05	knowledge of disassembly procedures as per manufacturers' specifications
18.02.06	ability to check for defects such as damaged chords and lacing, and broken wire rope
18.02.07	ability to select disassembly area

BLOCK G

CRANE OPERATION

Context: *Mobile crane operators must adapt to a variety of crane types and operations. Some mobile crane operators specialize in one type of crane operation while others may diversify their activities.*

Trends: *There is more sophisticated equipment for operating cranes, making it important for crane operators to upgrade their skills through regular training. Crane cabs and controls are being designed with better ergonomics. There is more variety in the types of cranes with bigger cranes entering the market.*

Tools and Equipment: PPE and safety equipment.

Task 19 Performs basic craning operations.

Sub-task

19.01 Uses computer and computerized components for crane operations.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

19.01.01	knowledge of crane manufacturers' procedures for computer setup
19.01.02	ability to prepare computer for crane operations
19.01.03	ability to program range limiting device according to potential hazards
19.01.04	ability to use LMI and load-monitoring devices
19.01.05	ability to use anti-two block system

Sub-task

19.02 Raises/lowers load.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

19.02.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
19.02.02	ability to operate controls to raise and lower the load

Sub-task

19.03 Swings crane.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

19.03.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
19.03.02	ability to operate controls to swing crane

Sub-task

19.04 Raises/lowers boom.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

19.04.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
19.04.02	ability to operate controls to raise and lower the boom

Sub-task

19.05 Operates telescopic boom.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

19.05.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
19.05.02	ability to operate controls to extend and retract boom

Task 20 Operates friction drive lattice boom cranes.

Sub-task

20.01 Operates friction drive crawler-mounted lattice boom cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

20.01.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
20.01.02	knowledge of power flows and power transmission
20.01.03	ability to coordinate clutch and brake operation to control the load
20.01.04	ability to judge terrain for pick and carry operations
20.01.05	ability to pick and carry load

Sub-task

20.02 Operates friction drive truck-mounted lattice boom cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

20.02.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
20.02.02	knowledge of power flows and power transmission
20.02.03	ability to move the crane on rubber when it is fully assembled
20.02.04	ability to coordinate clutch and brake to control crane operations

Task 21 Operates hydraulic drive lattice boom cranes.

Sub-task

21.01 Operates hydraulic drive crawler-mounted lattice boom cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

21.01.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
21.01.02	knowledge of basic hydraulic systems
21.01.03	ability to judge terrain for pick and carry operations
21.01.04	ability to pick and carry

Sub-task

21.02 Operates hydraulic drive truck-mounted lattice boom cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

21.02.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
21.02.02	knowledge of basic hydraulic systems
21.02.03	ability to move the crane on rubber when it is fully assembled

Task 22 Operates hydraulic boom cranes.

Sub-task

22.01 Operates RT cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

22.01.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
22.01.02	knowledge of basic hydraulic systems
22.01.03	knowledge of characteristics of RT cranes such as manoeuvrability and compact size
22.01.04	ability to judge terrain for pick and carry operations
22.01.05	ability to pick and carry

Sub-task

22.02 Operates AT cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

22.02.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
22.02.02	knowledge of basic hydraulic systems
22.02.03	knowledge of operations and limitations of the suspension system
22.02.04	knowledge of characteristics of AT cranes such as manoeuvrability and ease in setup
22.02.05	ability to move the crane when it is fully assembled

Sub-task

22.03 Operates truck-mounted hydraulic cranes.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

22.03.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
22.03.02	knowledge of basic hydraulic systems
22.03.03	ability to judge terrain for travel
22.03.04	ability to move the crane when it is fully assembled

Sub-task

22.04 Operates boom truck. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

22.04.01	knowledge of manufacturers' recommended procedures and working practices as described in the operator manual
22.04.02	knowledge of basic hydraulic systems
22.04.03	ability to place and secure load on deck

Task 23 Performs specialty craning operations.

Sub-task

23.01 Operates piledriver. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	no	yes	yes	NV	ND	NV

23.01.01	knowledge of types of hammers such as drop, diesel, vibratory and air hammers
23.01.02	knowledge of types of leads
23.01.03	ability to coordinate hammer operation with hand-foot-eye coordination

Sub-task

23.02 Operates clamshell. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	no	yes	yes	yes	no	yes	yes	NV	ND	NV

23.02.01	knowledge of clamshell operations

23.02.02	knowledge of weight of materials
23.02.03	knowledge of duty cycle consideration
23.02.04	ability to coordinate clamshell operation with hand-foot-eye coordination
23.02.05	ability to synchronize drums
23.02.06	ability to run two separate drums at the same time
23.02.07	ability to change wire ropes

Sub-task

23.03 Operates dragline.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	no	yes	yes	yes	no	yes	yes	NV	ND	NV

23.03.01	knowledge of dragline operations
23.03.02	knowledge of weight of materials
23.03.03	knowledge of duty cycle considerations
23.03.04	ability to coordinate dragline operation with hand-foot-eye coordination
23.03.05	ability to run two separate drums at the same time
23.03.06	ability to change wire ropes and teeth
23.03.07	ability to lay out swamp mats

Sub-task

23.04 Operates cranes on barges. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	no	yes	yes	NV	ND	NV

23.04.01	knowledge of factors affecting crane operation such as tides, current, ballast conditions and spud operation
23.04.02	knowledge of manufacturers' marine chart and specifications
23.04.03	knowledge of mat placement for travelling the crane
23.04.04	ability to secure crane and boom to barge
23.04.05	ability to assess weather conditions
23.04.06	ability to adapt to variable conditions that affect operations such as weather and tides

Sub-task

23.05 Performs wrecking ball operations. **Supporting Knowledge & Abilities**

(NOT COMMON CORE)

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	no	yes	yes	yes	no	no	yes	NV	ND	NV

23.05.01	knowledge of sizes of wrecking balls
23.05.02	knowledge of procedures and sequence of demolition
23.05.03	ability to coordinate wrecking ball operation with hand-foot-eye coordination

Sub-task

23.06 Operates magnet.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	no	yes	yes	yes	no	yes	yes	NV	ND	NV

23.06.01 knowledge of magnet manufacturers' specifications

23.06.02 knowledge of duty cycle consideration

23.06.03 ability to coordinate magnet and crane operation

Sub-task

23.07 Operates heavy lift attachments.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	no	yes	yes	yes	yes	yes	yes	NV	ND	NV

23.07.01 knowledge of types of heavy lift attachments such as superlifts, masts and ringers

23.07.02 knowledge of heavy lift operations and procedures

23.07.03 ability to set up heavy lift equipment

23.07.04 ability to interpret load charts for heavy lifts

Sub-task

23.08 Operates tower attachment and luffing jib.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	no	yes	yes	yes	yes	yes	yes	NV	ND	NV

23.08.01 knowledge of attachments for tower configurations

23.08.02	knowledge of attachments for luffing jibs
23.08.03	ability to interpret manufacturers' drawings for installing attachments
23.08.04	ability to recognize change of function in control levers

Sub-task

23.09 Performs multi-crane lifts.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

Supporting Knowledge & Abilities

23.09.01	knowledge of capacities of cranes involved in lift
23.09.02	knowledge of engineering drawings
23.09.03	knowledge of hazards specific to multi-crane lifts
23.09.04	ability to maintain constant communication with other crane operator(s) and lift supervisor
23.09.05	ability to assess lift conditions during multi-crane lift
23.09.06	ability to maintain constant load conditions

Sub-task

23.10 Uses personnel hoisting equipment.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

Supporting Knowledge & Abilities

23.10.01	knowledge of types of personnel hoisting equipment such as fixed basket and suspended basket

23.10.02	knowledge of rigging of personnel hoisting equipment
23.10.03	knowledge of regulations regarding personnel hoisting procedures
23.10.04	ability to attach personnel hoisting equipment
23.10.05	ability to interpret engineer requirements for capacity of basket
23.10.06	ability to perform test run at maximum weight capacity

Sub-task

23.11 Operates drilling attachment. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	no	yes	yes	yes	no	yes	yes	NV	ND	NV

23.11.01	knowledge of drilling attachments
23.11.02	knowledge of drilling procedures
23.11.03	ability to operate controls for drilling attachment
23.11.04	ability to rig drilling attachment
23.11.05	ability to coordinate operation with hand-foot-eye coordination

Sub-task

23.12 Operates knuckle boom trucks. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	no	yes	yes	yes	yes	yes	yes	NV	ND	NV

23.12.01	knowledge of knuckle boom control levers and remote control apparatus

23.12.02	knowledge of truck and chassis onto which knuckle boom is mounted
23.12.03	ability to set up knuckle boom
23.12.04	ability to recognize hazards specific to knuckle boom operation indoors
23.12.05	ability to rig loads on knuckle boom
23.12.06	ability to use rigging attachments such as pallet forks, timber tongs and barrel clamps

Task 24 Secures crane.

Sub-task

24.01 Secures crane for short term. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

24.01.01	knowledge of procedures for securing crane
24.01.02	knowledge of manufacturers' recommendations for securing crane
24.01.03	knowledge of company policies for securing crane
24.01.04	ability to engage positive swing lock
24.01.05	ability to secure swing brake
24.01.06	ability to engage hoist brake
24.01.07	ability to engage boom pawl
24.01.08	ability to disengage master clutch

Sub-task

24.02 Secures crane for long term. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	NV	yes	yes	yes	yes	yes	yes	yes	NV	ND	NV

24.02.01	knowledge of procedures for securing crane
24.02.02	knowledge of manufacturers' recommendations for securing crane
24.02.03	knowledge of government regulations for securing crane
24.02.04	knowledge of company policies for securing crane
24.02.05	knowledge of surrounding area
24.02.06	ability to lower boom to the ground
24.02.07	ability to tie off hoist lines
24.02.08	ability to engage positive swing lock
24.02.09	ability to secure swing brake
24.02.10	ability to engage hoist brake
24.02.11	ability to engage boom pawl
24.02.12	ability to disengage master clutch
24.02.13	ability to turn off master switch
24.02.14	ability to set crane to weather vane

APPENDICES

TOOLS AND EQUIPMENT

Hand Tools

adjustable wrenches (various sizes)
calculator
come-alongs (wire rope or chain)
flashlight
grease gun
hammers (ball peen, claw, sledge, various sizes)
level
line-up bar, drift pin, T-bar
measuring tape
oilcan
pliers (needle nose, slip joint)
pry bars
punches (knock-out type, various sizes)
ratchet set
scales
scrapers (various sizes)
screwdrivers (flat, Phillips, Robertson, various sizes)
shovel
snips (heavy duty wire cutting)
sprayer
spud wrenches
squeegee
tag lines
tire pressure gauge
tool box
vernier caliper
vice grips
wear gauge (wire rope and sheave)
wire brush
wire rope cutter
wire rope winder
wrench sets (open and closed ends, both metric and imperial)

Power Tools and Equipment

angle grinder with wire brush
electric drills
forklift
hand-held and stationary radios
headphones
hydraulic jack
impact wrenches (electric and pneumatic)
oxy-acetylene brazing torch
oxy-acetylene cutting torch
propane torch
steam cleaner or power wash

Personal Protective Equipment and Safety Equipment

coveralls
ear-plugs and muffs
eye wash station
face shields
fall arrest harness
fire blankets
fire extinguishers
fire-retardant coverall
first aid kit
gloves
goggles
hard hat
masks (particles, vapour)
reflectors
respirators
road flares
safety boots
safety glasses
spill kit
survival suits

GLOSSARY

air system — any machine system that is dependent on compressed air; the brakes on certain carriers would be an example of this type of system

all-terrain (AT) crane — all-terrain cranes typically can be configured to be driven from both the carrier and the upper; they usually have a "pick and carry" chart, and can be driven on public roads; they are rubber mounted (on tires); they have hydraulic suspension, which can be adjusted by the operator into "road" or "jobsite"; they always have hydraulic booms; these cranes usually have multiple axles, some of which may be "dead" and are for weight distribution only; they have manual rear steering in crab or cramp mode; many have automatic rear steering in cramp mode

anemometer — instrument for measuring and indicating the force or speed of the wind

attachments — accessories supplied by manufacturers to aid in crane operations

boom — the part of the crane that extends above the house (upper works or superstructure) and supports the line or lines to which the load is attached

car body — the frame of a chassis for a crawler crane to which the tracks and upper works attach

chassis — that part of the carrier that includes the steering and braking mechanisms, suspension, drive train and tracks or wheels

clamshell — special assembly installed at the lifting end of the hoist line that is designed to open and close in order to move mud, sand or other loose materials

controls — these include all levers, brakes, dogs, switches, buttons and other devices that the crane operator physically manipulates

counterweight — heavy metal or concrete attachments secured to the back of the upper works to offset the weight of the extended boom and load and increase lift capacity

crane log book — typically, a book in which the operator is required to record information, such as inspection, maintenance, locations, hours worked as well as damage and repair details

crawler crane — any mobile crane that uses a track-driven carrier

dragline — accessory installed at, and suspended by, the lifting end of the hoist line that is designed to scrape earth or other material into it as it is dragged toward the crane by a second drum

drum — a cylindrical component on the mobile crane that is used to store and dispense line; the line is wound or spooled onto the drum when the operator causes the drum to rotate

extend the boom hydraulic cranes, in most cases, have one or more telescoping sections to the main boom; this is one feature that allows the operator to control the length of the boom

gross capacity this is the maximum amount of weight that a specific crane and boom configuration can lift

gross load the weight of the load plus other items, such as the hook block, hoist lines, rigging, etc.

hardware usually refers to rigging hardware, which can be any of a wide range of bolts, hooks, chains, shackles, clamps and other mechanical devices used to secure or attach to loads in preparation for hoisting

hoist line this may be a single line attached to a ball, lift hook or other assembly; the term hoist line may also be used to describe the compound assembly of lines running through the hook block

hoisting the act of manipulating the crane controls in order to move a load

hook block a heavy metal block containing sheaves or pulleys, located at the end of the hoist line on some cranes; the hook block is equipped with a hook for attachment of loads

house that part of the mobile crane above the carrier which rotates and supports the boom, winches, cylinders and other components; also known as upper works or superstructure

hydraulic system any system that relies on pressurized oil to make it function; the boom on hydraulic cranes is manipulated through the use of oil under pressure

jib an extension attached to the boom point to provide added boom length for lifting specified loads; the jib may be in line with the boom or offset to various angles and is normally wire rope supported

levelling the process of positioning the crane so that it is level prior to lifting a load

magnet an attachment installed at the lifting end of the hoist line in order to lift and move metal

master clutch some cranes are equipped with a control known as the master clutch which can be manipulated to engage and disengage the power source

multi-crane lifts in some instances, it is impossible to accomplish certain lifts using only one crane; in these circumstances, two or more cranes may be attached to the same load and they are used simultaneously to perform the task

net capacity this term applies to the weight of the item to be lifted by the crane (i.e. the gross capacity minus all capacity deductions)

net load the load to be lifted without any deductions

outriggers supports that extend from the carrier vehicle to the ground to provide stability; outriggers are composed of beams and jacks

overhaul ball	an iron ball placed above the hook on a lead line, which furnishes weight to allow the line to be lowered when no load is attached; also known as headache ball
pads	wood, metal, or synthetic assemblies that are placed under the adjustable ends of the outriggers or tracks; these items increase the amount of bearing and support given by the outriggers or the tracks to the crane
parts of line	the number of parts (individual ropes) of hoist line are calculated in accordance with the amount of weight to be hoisted; in some cases the operator must ensure that the load is lifted using a hook block that allows sufficient parts of line between the head, sheave and hook block to effectively move the load; all the parts of line are known as the hoist line
pawl	this term applies to any device or control that locks or stops machinery or components (usually winches) from rotating
piledriver	an attachment used to force metal, concrete or wooden pilings into the ground
radius	this is the horizontal distance from the centre of rotation of a crane to the centre of gravity of load with the load suspended
reeving	a method of rigging a block which results in even line pull on all sheaves; when viewed from the side, the line typically forms a "figure eight" profile
rig	describes the act of attaching loads to the hoist line
rigger	a designated individual whose duty it is to ensure that loads are appropriately attached or rigged to the hoist line of the crane
rough-terrain (RT) crane	rough-terrain cranes are driven from the upper; they are rubber mounted (on tires) and may be two wheel or all wheel drive; they may have automatic or manual rear steering; they have solid suspension and axle lockouts. RT cranes have off-road capability and typically can not be configured to drive on public roads; they have "on-rubber" charts
sheaves	the wheels or pulleys located in a hook block, boom heads, or other parts of the crane boom on which the line runs
signaller	an designated individual who relays information to the crane operator
sling	any metal or synthetic flexible device used to cradle or support a load
specialty equipment	equipment used for a specific operation
spooling	the process of winding line either onto or off of a drum on which it is stored
swing	rotating the upper works horizontally through part or all of the radius or circle
swing-away	a lattice extension pinned to the boom of a hydraulic crane; also called a jib or a fly

telescopic boom	a boom consisting of a base boom from which one or more boom sections are telescoped for additional length
tracks	the carrier system used to move certain cranes requires the use of tracks rather than wheels
truck-mounted crane	truck mounted cranes may have either lattice or hydraulic booms; the cranes are rubber mounted (on tires); these cranes must be driven from the carrier; they can be configured to be driven on public roads
wire rope	often referred to as cable, this material is made of many extremely strong and flexible metal alloy wires wound in various configurations to suit a range of conditions
wire rope cutter	a mechanical device especially designed to cut wire rope

BLOCK AND TASK WEIGHTING

BLOCK A OCCUPATIONAL SKILLS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	5	7	NV	10	2	2	5	5	5	10	NV	ND	NV	6%

Task 1 Uses tools and equipment.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	40	30	NV	53	40	20	30	40	50	50	NV	ND	NV	39%

Task 2 Organizes work.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	60	70	NV	47	60	80	70	60	50	50	NV	ND	NV	61%

BLOCK B HOISTING CALCULATIONS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	15	20	NV	20	30	20	25	35	20	20	NV	ND	NV	23%

Task 3 Determines load weights.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	20	20	NV	36	30	35	25	30	20	25	NV	ND	NV	27%

Task 4 Calculates crane capacity.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	60	50	NV	36	40	35	50	40	40	60	NV	ND	NV	46%

Task 5 Performs rigging calculations.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	20	30	NV	28	30	30	25	30	40	15	NV	ND	NV	27%

BLOCK C CRANE INSPECTION AND MAINTENANCE

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	10	13	NV	15	8	15	10	6	5	15	NV	ND	NV	11%

Task 6 Performs pre-operational checks and regular inspections.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	50	NV	35	50	65	50	40	40	50	NV	ND	NV	48%

Task 7 Performs continual checks.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	25	15	NV	33	40	25	25	20	40	25	NV	ND	NV	27%

Task 8 Performs minor crane maintenance.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	25	35	NV	32	10	10	25	40	20	25	NV	ND	NV	25%

BLOCK D RIGGING

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	15	16	NV	14	10	15	13	7	15	10	NV	ND	NV	13%

Task 9 Inspects and maintains slings and hardware.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	40	25	NV	53	30	20	30	40	25	60	NV	ND	NV	36%

Task 10 Follows rigging procedures.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	60	75	NV	47	70	80	70	60	75	40	NV	ND	NV	64%

BLOCK E LIFT PLANNING, SITE PREPARATION AND CRANE SETUP

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	20	18	NV	15	25	20	20	7	25	15	NV	ND	NV	18%

Task 11 Performs pre-lift planning.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	50	NV	58	50	25	50	40	50	25	NV	ND	NV	44%

Task 12 Sets up crane.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	50	NV	42	50	75	50	60	50	75	NV	ND	NV	56%

BLOCK F CRANE ASSEMBLY, DISASSEMBLY AND TRANSPORT

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	10	10	NV	8	20	8	10	15	10	10	NV	ND	NV	11%

Task 13 Loads and unloads components for transport.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	5	20	NV	20	5	20	10	10	20	30	NV	ND	NV	15%

Task 14 Drives cranes on public roadways and jobsites.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	15	10	NV	17	5	20	10	10	10	10	NV	ND	NV	12%

Task 15 Assembles and disassembles crawler and truck-mounted lattice cranes.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	25	25	NV	12	30	20	30	10	30	40	NV	ND	NV	25%

Task 16 Assembles and disassembles truck-mounted and all-terrain (AT) hydraulic cranes.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	25	25	NV	18	30	20	20	10	25	5	NV	ND	NV	20%

Task 17 Assembles and disassembles rough-terrain (RT) cranes.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
%	25	10	NV	15	20	10	15	30	5	5	NV	ND	NV

15%

Task 18 Assembles and disassembles specialty equipment and attachments.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
%	5	10	NV	18	10	10	15	30	10	10	NV	ND	NV

13%

BLOCK G CRANE OPERATION

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	25	16	NV	18	5	20	17	25	20	20	NV	ND	NV	18%

Task 19 Performs basic craning operations.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
%	15	10	NV	25	20	20	40	20	25	20	NV	ND	NV

22%

Task 20 Operates friction drive lattice boom cranes.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
%	25	30	NV	15	20	20	15	20	15	15	NV	ND	NV

19%

Task 21 Operates hydraulic drive lattice boom cranes.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
%	25	25	NV	15	25	20	15	20	15	5	NV	ND	NV

18%

Task 22 Operates hydraulic boom cranes.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
%	25	17	NV	22	25	20	15	20	15	20	NV	ND	NV

20%

Task 23 Performs specialty craning operations.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
%	5	5	NV	10	5	10	10	10	25	30	NV	ND	NV

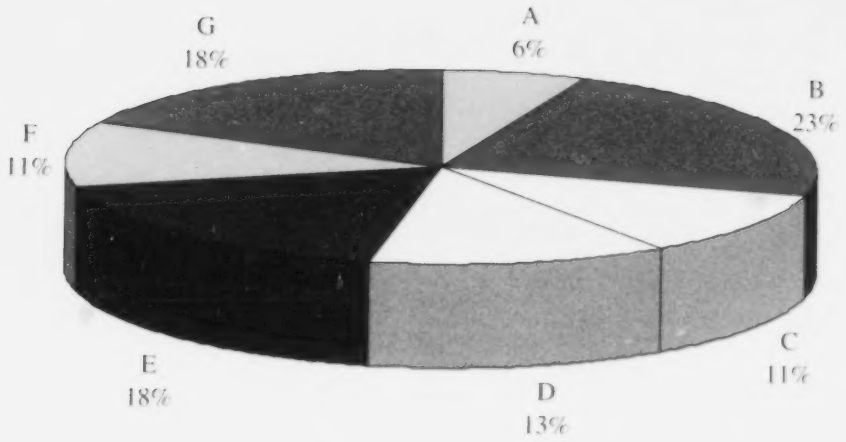
12%

Task 24 Secures crane.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
%	5	13	NV	13	5	10	5	10	5	10	NV	ND	NV

9%

PIE CHART*



TITLES OF BLOCKS

Block A	Occupational Skills	Block E	Lift planning, Site Preparation and Crane Setup
Block B	Hoisting Calculations	Block F	Crane Assembly, Disassembly and Transport
Block C	Crane Inspection and Maintenance	Block G	Crane Operation
Block D	Rigging		

* Average percentage of the total number of questions on an interprovincial examination, assigned to assess each block of the analysis, as derived from the collective input from workers within the occupation from all areas of Canada. Interprovincial examinations typically have from 100 to 150 multiple-choice questions.

TASK PROFILE CHART – MOBILE CRANE OPERATOR (2006)

BLOCKS	TASKS	SUB-TASKS				
A OCCUPATIONAL SKILLS	**1. Uses tools and equipment.**	1.01 Uses hand tools.	1.02 Uses power tools.	1.03 Uses torches.	1.04 Uses measuring equipment.	1.05 Uses personal protective equipment (PPE) and safety equipment.
	2. Organizes work.	2.01 Communicates with others.	2.02 Uses documentation.	2.03 Identifies hazards.		
B HOISTING CALCULATIONS	**3. Determines load weights.**	3.01 Identifies the weight.	3.02 Calculates weight.			
	4. Calculates crane capacity.	4.01 Determines radius and crane configuration.	4.02 Interprets load charts.			
	5. Performs rigging calculations.	5.01 Performs sling angle calculations.	5.02 Performs working load limit (WLL) calculations.			
C CRANE INSPECTION AND MAINTENANCE	**6. Performs pre-operational checks and regular inspections.**	6.01 Inspects engine systems.	6.02 Inspects air systems.	6.03 Inspects electrical systems.	6.04 Inspects hydraulic systems.	6.05 Inspects chassis/car body and running gear components.
		6.06 Inspects outriggers and counterweights.	6.07 Inspects boom components and attachments.	6.08 Inspects hoisting systems.	6.09 Inspects operating controls.	6.10 Inspects monitoring and warning systems.
	7. Performs continual checks.	7.01 Monitors site conditions.	7.02 Monitors running lines, hoist lines and standing ropes.	7.03 Monitors gauges and warning systems.		
	8. Performs minor crane maintenance.	8.01 Changes oil and filter.	8.02 Greases crane.	8.03 Lubricates wire ropes.	8.04 Makes minor adjustments and replacements.	

MOBILE CRANE OPERATOR (2006)

BLOCKS	TASKS	SUB-TASKS					
D RIGGING	**9. Inspects and maintains slings and hardware.**	9.01 Lubricates slings and hardware.	9.02 Identifies deformities in slings and hardware.	9.03 Disposes of damaged slings and hardware.			
	10. Follows rigging procedures.	10.01 Selects required rigging.	10.02 Rigs loads.	10.03 Monitors rigging.			
E LIFT PLANNING, SITE PREPARATION AND CRANE SETUP	**11. Performs pre-lift planning.**	11.01 Participates in routine, engineered and specialty lift planning.	11.02 Assesses risks and hazards.				
	12. Sets up crane.	12.01 Performs final site inspection.	12.02 Positions crane.	12.03 Completes setup.			
F CRANE ASSEMBLY, DISASSEMBLY AND TRANSPORT	**13. Loads and unloads components for transport.**	13.01 Loads crane and components.	13.02 Unloads crane and components.				
	14. Drives cranes on public roadways and jobsites.	14.01 Performs pre-trip planning.	14.02 Prepares crane for transport.	14.03 Drives cranes on public roadways.	14.04 Drives cranes on jobsites.		
	15. Assembles and disassembles crawler and truck-mounted lattice cranes.	15.01 Installs tracks on car body.	15.02 Installs house.	15.03 Installs outrigger boxes on truck-mounted lattice cranes.	15.04 Installs boom base.	15.05 Assembles boom and jib.	15.06 Installs counterweights on crawler and truck-mounted lattice cranes.
		15.07 Installs hoist lines, hook blocks and overhaul ball on crawler and truck-mounted lattice cranes.	15.08 Removes hoist lines, hook blocks and overhaul ball from crawler and truck-mounted lattice cranes.	15.09 Disassembles boom and jib.	15.10 Removes counterweights from crawler and truck-mounted lattice cranes.	15.11 Removes boom base.	15.12 Removes house
		15.13. Removes tracks from car body.	15.14 Removes outrigger boxes from truck-mounted lattice cranes.				

MOBILE CRANE OPERATOR (2006)

BLOCKS	TASKS	SUB-TASKS					
CRANE OPERATION	16. Assembles and disassembles truck-mounted and all-terrain (AT) hydraulic cranes.	16.01 Installs outrigger boxes on truck-mounted and AT hydraulic cranes.	16.02 Installs hoist lines, hook blocks and overhaul ball on truck-mounted and AT hydraulic cranes.	16.03 Installs counterweights on truck-mounted and AT hydraulic cranes.	16.04 Installs swing-away jib and jib on truck-mounted and AT hydraulic cranes.	16.05 Removes swing-away jib and jib from truck-mounted and AT hydraulic cranes.	16.06 Removes counterweights for truck-mounted and AT hydraulic cranes.
		16.07 Removes hoist lines, hook blocks and overhaul ball from truck-mounted and AT hydraulic cranes.	16.08 Removes outrigger boxes from truck-mounted and AT hydraulic cranes.				
	17. Assembles and disassembles rough-terrain (RT) cranes.	17.01 Installs counterweights on RT cranes.	17.02 Installs swing-away jib and jib on RT cranes.	17.03 Removes counterweights from RT cranes.	17.04 Removes swing-away jib and jib from RT cranes.		
	18. Assembles and disassembles specialty equipment and attachments.	18.01 Assembles specialty equipment and attachments.	18.02 Disassembles specialty equipment and attachments.				
	19. Performs basic craning operations.	19.01 Uses computer and computerized components for crane operations.	19.02 Raises/lowers load.	19.03 Swings crane.	19.04 Raises/lowers boom.	19.05 Operates telescopic boom.	
	20. Operates friction drive lattice boom cranes.	20.01 Operates friction drive crawler-mounted lattice boom cranes.	20.02 Operates friction drive truck-mounted lattice boom cranes.				
	21. Operates hydraulic drive lattice boom cranes.	21.01 Operates hydraulic drive crawler-mounted lattice boom cranes.	21.02 Operates hydraulic drive truck-mounted lattice boom cranes.				
	22. Operates hydraulic boom cranes.	22.01 Operates RT cranes.	22.02 Operates AT cranes.	22.03 Operates truck-mounted hydraulic cranes.	22.04 Operates boom truck.		
	23. Performs specialty craning operations.	23.01 Operates piledriver.	23.02 Operates clamshell.	23.03 Operates dragline.	23.04 Operates cranes on barges.	23.05 Performs wrecking ball operations. (NOT COMMON CORE)	23.06 Operates magnet.

BLOCKS	TASKS	SUB-TASKS					
		23.07 Operates heavy lift attachments.	23.08 Operates tower attachment and luffing jib.	23.09 Performs multi-crane lifts.	23.10 Uses personnel hoisting equipment.	22.11 Operates drilling attachment.	23.12 Operates knuckle boom trucks.
	24. Secures crane.	24.01 Secures crane for short term.	24.02 Secures crane for long term.				